

**TRANSLATION**

**PATENT COOPERATION TREATY**

**PCT**

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>2003P16465WO</b>	<b>FOR FURTHER ACTION</b>	See Form PCT/IPEA/416
International application No. <b>PCT/EP2004/053511</b>	International filing date ( <i>day/month/year</i> ) <b>15.12.2004</b>	Priority date ( <i>day/month/year</i> ) <b>15.12.2003</b>
International Patent Classification (IPC) or national classification and IPC <b>H04B10/17, H01S3/131</b>		
Applicant <b>SIEMENS AKTIENGESELLSCHAFT</b>		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of <u>6</u> sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising: a. <input type="checkbox"/> ( <i>sent to the applicant and to the International Bureau</i> ) a total of _____ sheets, as follows: <input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. b. <input type="checkbox"/> ( <i>sent to the International Bureau only</i> ) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).
4. This report contains indications relating to the following items: <input checked="" type="checkbox"/> Box No. I Basis of the report <input type="checkbox"/> Box No. II Priority <input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input type="checkbox"/> Box No. IV Lack of unity of invention <input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input type="checkbox"/> Box No. VI Certain documents cited <input type="checkbox"/> Box No. VII Certain defects in the international application <input checked="" type="checkbox"/> Box No. VIII Certain observations on the international application

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

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## Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages \_\_\_\_\_ as originally filed/furnished
- pages\* 1-21 received by this Authority on 15.02.2005 with letter of 11.02.2005
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the claims:
- nos. 1-6 as originally filed/furnished
- nos.\* \_\_\_\_\_ as amended (together with any statement) under Article 19
- nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the drawings:
- sheets 1/8-8/8 as originally filed/furnished
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1.	Statement		
	Novelty (N)	Claims <u>1-6</u>	YES
		Claims _____	NO
	Inventive step (IS)	Claims <u>2, 3, 6</u>	YES
		Claims <u>1, 4, 5</u>	NO
	Industrial applicability (IA)	Claims <u>1-6</u>	YES
		Claims _____	NO
2.	Citations and explanations (Rule 70.7)		
1.1	This report makes reference to the following documents:		
	D1: EP-A-1079481		
	D2: US-A-6163399		
	D3: US-A-6414788		
2.1	Document D1 is considered to constitute the prior art closest to the subject matter of <b>claim 1</b> and discloses (the references in parentheses are to that document):		
	<p>a process for adapting the pump power of an optical amplifier which amplifies an optical wavelength-multiplexed signal with multiple channels of different wavelengths (<i>cf. column 2, lines 49-51</i>), and in which a change in input power (<i>cf. column 3, lines 5-7</i>) or output power (<i>cf. column 10, lines 17-22</i>) is detected, the total input power (<i>cf. <math>P_{in}</math> and 240 in figure 6</i>) and the total output power (<i>cf. <math>P_{out}</math> and 703 in figure 6</i>) being measured within a time interval after the change in input power, and a new value of the pump</p>		

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	<p>power being calculated and set on the basis of the measured power (<i>cf. column 8, lines 4-17, and column 10, lines 41-58</i>), starting from a previously prevailing, preferably stable gain state (<i>cf. column 2, paragraph 007, and column 4/5, paragraphs 0013: these passages imply that the system is in a stable state before individual optical channels are added or dropped</i>), so that the gain curve of the amplifier remains as constant as possible (<i>cf. column 2, paragraph 007, and column 5, line 5</i>).</p> <p><b>2.2</b> The subject matter of claim 1 therefore differs from the pump power regulation method disclosed in D1 only in that</p> <p>(i) the time interval during which the total input power and total output power are measured is smaller than the reaction time of the amplifier.</p> <p><b>2.3</b> For a person skilled in the art familiar with the determination of a suitable measurement time for measuring the total input power and total output power (<i>objective problem addressed, proceeding from D1</i>), it is obvious to do this as quickly as possible, in order to reduce the costs of the electronic components used. This is suggested, <i>inter alia</i>, by paragraph 3, lines 5-7, of D1. Consequently, a person skilled in the art seeking to solve the above-mentioned problem would arrive at the claimed features without being inventive.</p>

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
	<p><b>Claim 1</b> thus does not meet the requirements of PCT Article 33(3).</p> <p><b>2.4</b> The following dependent claims do not contain any features which, in combination with the features of any claim to which they refer, meet the PCT inventive step requirements, for the following reasons:</p> <p><b>Claims 4 and 5:</b> the subject matter of these claims is disclosed in D1 (see column 13, lines 21-44), and therefore cannot be considered inventive (PCT Article 33(3)).</p>

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Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

- 1.1 The expression "preferably" in line 13 of **claim 1** makes the features to which it refers entirely optional, and therefore they do not restrict the claimed subject matter (PCT Article 6).